NORTH ATLANTIC TROPICAL DISTURBANCES OF 1941

By HOWARD C. SUMNER

[Weather Bureau, Washington, January 1942]

The hurricane season of 1941, near normal in other respects, was of exceptionally short duration. During the 37 days between the 11th of September and the 18th of October, 6 tropical disturbances developed in rapid succession, an average of approximately 1 storm every 6 days. The 21 disturbances of 1933, the highest number ever recorded in a single season during the 55-year period of record, had an average of about 8.5 days between storms.

The first and last storms of the past season were of slight intensity with only minor damage being reported. The remaining disturbances all developed winds of full hurricane force. They took a combined toll of over 60 lives, and wrought crop and property losses estimated at well over $10,000,000. An unusual situation developed September 23 when 3 hurricanes (II, III, and IV on the accompanying chart) were in progress simultaneously at widely separated points, one in the eastern Caribbean, one in the Gulf of Mexico, and another in the North Atlantic off Hatteras.

The only disturbance associated with the Caribbean Sea area traversed the entire length of that body of water from east to west, maintaining hurricane winds for almost the entire distance. It then moved across the coast of Nicaragua and emerged into the Gulf of Honduras with undiminished intensity. After crossing additional countries of Central America and the Bay of Campeche it moved inland, for the third time, and dissipated south of Tampico, Mexico. Of the remaining disturbances, two crossed the Texas coast, two moved inland in Florida, and one spent its energy over the North Atlantic, with no destructive winds being reported on land.

Two-thirds of these disturbances developed winds of hurricane force. This proportion, though considerably above normal, is not unusual when all or most of the disturbances develop during a short period at the height of the hurricane season.

A synopsis of the tropical disturbances of 1941 is given in the following table. Their tracks, numbered I to VI chronologically, are shown on the accompanying chart.

NORTH ATLANTIC TROPICAL DISTURBANCES OF 1941

[Synopsis of tropical disturbances of 1941 (number of storm in table corresponds to number of track on accompanying chart)]

Storm	Date	Place where first reported	Coast lines crossed	Maximum wind velocity reported	Lowest barometer reported	Place of dissipation	Intensity	Remarks
I	Sept. 11–15	About 120 miles southeast of Port Eads, La.	Texas	Force 8 ENE, a ship.	1002.7 millibars (29.61 inches), a ship,	East Texas coast	Not of hurricane intensity.	No property damage or injuries reported (A).
II	Sept. 18–26	About 180 miles south of Port Eads, La.	do	Force 12 NE., a ship, 83 miles per hour, Texas City, Tex.	970.5 millibars (28.66 inches), a ship.	Southern Quebec Province.	Full hurricane	4 lives lost; $2,000,000 property damage; crop losses estimated in excess of $5,000,000 (A).
III	Sept. 18–26	Off east central Florida coast.	None	Force 12 ESE, a ship.	995.3 millibars (29.39 inches), a ship.	Near 38° N., 63° W.	do	Caused considerable delay in North Atlantic shipping (A).
IV	Sept. 23–30[1]	Between Barbados and St. Lucia.	Nicaragua, British Honduras, and Mexico.	100 miles per hour (estimated), a ship.	992.9 millibars (29.32 inches), a ship.	Eastern Mexico	do	47 lives lost at sea; 3 drowned at Cape Gracias; heavy crop and property damage in Central America (A).
V	Oct. 3–12	About 300 miles north of Virgin Islands.	Florida	123 miles per hour, Pan-American Dinner Key base.	964.4 millibars (28.48 inches), Cat Island.	South of Bermuda	do	8 lives lost in the Bahamas and Florida; considerable property and crop damage in Florida, Georgia and the Bahamas (B).
VI	Oct. 18–21[2]	About 100 miles off the west Florida coast.	do	45 miles per hour WSW, a ship.	1002.4 millibars (29.60 inches), a ship.	North Florida	Not of hurricane intensity.	Torrential rains wrought some flood damage in northern Florida (B).

[1] A late special report received from Mr. Albert Krog, Radio Operator of the Standard Fruit & Steamship Co., Puerto Cabezas, Nicaragua, states that on September 27, about 20 miles up the Rio Coco from Cape Gracias, the barometer on the schooner *Bravo* fell to 28.25 inches (uncorrected), at about 3 p. m. Farther inland from the Cape, at Boom, the central calm of the hurricane lasted from 5 to 6 p. m.

[2] Squally weather had moved across the southern Bahamas and through the Florida Straits during the preceding 2 days, but no definite cyclonic circulation could be detected until the evening of Oct. 18.

Complete reports of these disturbances may be found in the MONTHLY WEATHER REVIEW: (A) September 1941; 69: 264–266. (B) October 1941; 69: 303, 304.

TYPHOONS AND DEPRESSIONS OVER THE FAR EAST, OCTOBER 1941

By BERNARD F. DOUCETTE, S. J.

[Weather Bureau, Manila, P. I.]

Depression, October 18–23, 1941.—About half way between Yap and Mindanao a low-pressure area became a depression moving in a west-northwesterly direction, October 18 and 19. The afternoon and evening observations from stations near San Bernardino Strait indicated that the storm was intensifying, yet the morning of October 20 showed only a depression, central over Bondoc Peninsula, which had moved westerly across southern Luzon during the night. This weak center moved westerly into the China Sea. As a depression of minor importance, it moved northwest about 200 miles after leaving Verde Island Passage, then westerly to Indo-China where it disappeared.

Two lives were lost on Marinduque Island as this depression crossed the Archipelago. Considerable rain was reported from stations of southern Luzon and the Visayan Islands.

As this center was approaching southern Luzon, October 19, Virac, Catanduanes Island reported 751.2 mm. (1000.5 mb.) indicating that the storm was intensifying to typhoon strength. However, during the night, nothing lower than the above value was reported as the storm center moved across the Archipelago.

The upper winds over Zamboanga and Cebu changed from the east quadrant to the southwest quadrant on

October 16. Almost at the same time, a mild surge from the east quadrant appeared over Guam. As the depression center came into existence, Zamboanga and Cebu velocities were weak, but directions showed a tendency to shift to the northwest quadrant. This tendency also appeared in the directions of the lower clouds over stations of the Visayan Islands. Because of these weak velocities and the movement of cool air from northern regions around the regions south of the center into the weak southwesterly air stream, there was no development. Velocities of the upper winds over Cebu and Zamboanga reached values of 50 and 60 k. p. h. only on October 20, when the depression center was moving toward Verde Island Passage. Other days, values were below 40 k. p. h. Indications that the southwesterly air stream was weak over southern Indo-China and Thailand were shown by the scattered reports received from these regions.

Typhoon, October 22–November 2, 1941.—As well as can be determined from available data, this typhoon seems to have formed far to the southeast or south-southeast of Guam. On October 22, a definite center, quite intense, seemed to be located about 300 miles south-southeast of Guam, and its movement was in a north-northwesterly direction. From October 23 to 25, this typhoon moved northerly along a course about 120 miles east of Guam. The next 3 days, the center seemed to be close to and east of the northern Mariana Islands, stationary perhaps, or moving slowly in various directions. October 28 to 31, it moved west-northwest to the ocean regions about 300 miles southwest of the Bonin Islands. It either disappeared over those regions or moved about 500 miles to the east as a low pressure area (October 31 to November 2) after which no trace of the storm could be found.

The upper winds over Guam from October 17 onward were from the northeast and east quadrants, the velocities never exceeding 47 k. p. h. and mostly between 5 and 30 k. p. h. On October 21, the winds were backing to the north-northeast, velocities being less than 40 k. p. h. On October 22 and the 2 following days, the directions were from the north-northwest and north, with velocities ranging from 15 to 67 k. p. h. On October 25 and the following days, Guam was under the influence of air streams from the west and southwest quadrants, with velocities less than 40 k. p. h. Stations over the Philippines were reporting directions from the northeast, east, and southeast quadrants during these days, with no evidence that the southwest monsoon air stream was present over the Archipelago.

After October 19, no ships' observations were on hand. The above account of the origin and course of the typhoon, especially after October 24, may have to be altered when such observations from ships become available later.

METEOROLOGICAL AND CLIMATOLOGICAL DATA FOR DECEMBER 1941

[Climate and Crop Weather Division, J. B. KINCER in charge]

AEROLOGICAL OBSERVATIONS

By HOMER D. DYCK

Mean surface temperatures for December, as for the preceding months of the year, were above normal in practically all sections of the country. Nearly all sections reported means 2° to 10° F. above normal; the extreme Northeast, the Southern States and Pacific coast districts had the smallest plus departures, mostly 2° or 3° F., and the area from the Ohio and central Mississippi Valleys and southern Great Plains northward the largest, generally 5° to 11° F.

At 1,500 meters above sea level the 5 a. m. resultant winds for December were from directions to south of normal over most of the country with the exception of southern Texas, the north Pacific coast and several scattered stations where they were to north of normal. At 3,000 meters the morning resultant winds were to south of normal over practically all stations where a comparison was possible. These stations were located in the Rocky Mountain and Plateau regions, the central and northern Great Plains, the central Mississippi Valley, and the central Gulf States. At 5,000 meters a comparison of the afternoon resultants with the a. m. normals was possible only over the Rocky Mountain region, Oklahoma and Texas, and all resultants in these regions were to south of normal. It was in accordance with the tendency of resultant wind directions to turn to southward in most parts of the country that surface temperatures were above normal.

At 1,500 meters resultant wind velocities were below normal over the extreme northern Plateau and extreme northern Rocky Mountain region, the Southeast and the North and Middle Atlantic States, while they were above normal generally elsewhere. At 3,000 meters a comparison of December a. m. resultant velocities was not possible over the Pacific States, the Lake region and Texas. Velocities were below normal, however, over the northern Great Plains, Oklahoma and northern New Mexico, and generally above normal elsewhere. At 5,000 meters the 9 stations where a comparison was possible showed December a. m. velocities above the p. m. normals.

When the 5 p. m. resultant directions are compared to the 5 a. m. resultant directions, no well-marked pattern of change is evident; and the number of stations where there was turning to southward during the day about equaled the number where the opposite shift took place at both 3,000 and 5,000 meters.

The 5 p. m. resultant velocities were lower than the 5 a. m. resultant velocities over the far Northwest, the Lake region, the middle Mississippi and Ohio Valleys and the central Gulf States and higher than the morning winds elsewhere. At 3,000 meters a comparison of a. m. and p. m. resultant velocities was not possible over the Pacfiic States, the Lake region and the Northeast. Afternoon velocities were lower than morning velocities, however, over the central Rocky Mountain region and the Southeast and generally higher elsewhere.

The upper air data discussed above are based on 5 a. m. (E. S. T.) pilot balloon observations (charts VIII and IX) as well as on observations made at 5 p. m. (table 2 and charts X and XI).

The highest mean monthly pressure was recorded at Miami, Fla., at all standard levels from 2,000 to 16,000 meters inclusive. Brownsville, Tex., also recorded the maximum at 16,000 meters. The lowest mean monthly pressure from 2,000 to 4,000 meters inclusive was recorded over Sault Ste. Marie, at 5,000 meters over Seattle, and at 6,000 meters over both Sault Ste. Marie and Seattle. From 7,000 to 14,000 meters the lowest mean monthly pressure was recorded over Seattle. At 13,000 meters the lowest mean was also recorded over Spokane while at 14,000 meters a number of stations, namely, Bismarck, Great Falls, Portland, Me., Sault Ste. Marie, Seattle and Spokane recorded the minimum. At 15,000 and 16,000 meters the lowest mean monthly pressure was recorded over Portland, Maine.